102-70-52

NORTH THORNE RIVER PLAN

I. [illegible]

The North Thorne River Drainage is part of the Ketchikan Pulp Company timber sale and is scheduled to be logged the five year operating period ending July 1974, and possibly extending into the next five year period. There is logging on the main haul road which extends to the unit boundary east of Snakey Lake. (See map - Appendix D) This study is a detailed segment of the more encompassing plan for the Ketchikan Pulp Company sale area on Prince of Wales Island. As these individual segments are completed, they will conform to the broad sale area plan and also be in harmony with the Forest Multiple Use Plan.

II. INTRODUCTION

The North Thorne River Unit is on Prince of Wales Island in the vicinity of Thorne Bay. It is bounded on the west by the Honker Divide special management area, on the east by the Ratz and Luck Lake segment of the KPC planning unit and on the south by the Thorne Bay segment.

The Unit includes that part of the North Thorne River drainage that is not in the Honker Divide Unit and has not already been released for logging (see map - Appendix D). All of the Unit is zoned General Forest. Snakey Lake (zoned Water Influence) is in the presently defined Honker Divide Unit but was considered in this plan to the extent that land management in North Thorne River might effect or limit future opportunities in the Honker area.

North Thorne River, comprising some 17,000 acres, is part of the 96,000 acre Thorne River drainage; the largest watershed on Prince of Wales Island. The drainage has about 6,887 acres of commercial timber. There are two major streams referred to as the east and west fork, and numerous tributory rearing areas. The North Thorne drainage has some lakes and ponds; none of which are in the study area but most are directly influenced by activities on the east and west fork streams. All species of salmon, except kings, and all sports fish native to Southeast spawn in the drainage.

Physiographically, the Unit is composed of two heavily glaciated U-shaped valleys. The valley floor is deeply mantled with glacial till and alluvium, and all of the lakes and ponds in the North Thorne drainage are filled or presently being filled with organic deposits (muskeg). The slopes are among the highest landslide prone areas on Prince of Wales and numerous snowslides tracts are present on the cooler aspects.

The local public has been involved in management of this area to the extent of their participation in the Multiple Use replanning and a special presentation of the Honker Divide Unit. Direct reference has not been made to the study area regarding management alternatives for the Unit.

This study was conducted by an interdisciplinary team. Each member inventoried and evaluated the Unit to the extent necessary for his particular discipline and presented his report and recommendations for the plan. A team consensus meeting was held July 7, 1972, and the management guidelines formulated. The individual reports and minutes of the meeting are in the appendix of this report. The following team members participated in planning the Unit:

Forest Service

Charlie Cass - Soil Scientist/Planning Team Leader
Wayne Tlusty - Landscape Architect
Dan Bishop - Hydrologist
Doug Swanston - Geologist and Soil Stability Specialist
Marlin Johnson - Forester
Bob Burke - Forester
Dan Swaney - Forester

Alaska Department of Fish and Game

Rick Reed - Sport Fish Biologist
Paul Novak - Commercial Fish Biologist
John Palmes - Habitat Coordinator
Bob Wood - Game Biologist

Ketchikan Pulp Company

Walt Begalka - Chief Forester and Logging Engineer
Gene Feind - Logging Engineer, Thorne Bay

III. OBJECTIVES

Our primary objective for the study area was to select a management alternative which would maximize public benefits at minimum cost; both in dollars and opportunity costs. To accomplish this, the following goals were established:

1. Fully consider and evaluate the resources in the Unit and then determine both the conflicts and compatibilities, with the constraint that the area is part of the Ketchikan Pulp Company long-term sale.

2. Formulate guidelines to compliment the existing General Forest Zone - Coordinating Requirements to insure consistent and orderly implementation of the selected management alternative.

IV. PROPOSED PLAN

Management Alternatives

Field studies and subsequent evaluation (individual reports in the appendix) by team members revealed nothing which would make the Unit a candidate for special classification or require any Multiple Use zoning other than the assigned general forest.

The Unit resource conflicts which require major emphasis are the soil and topographic constraints in areas of commercial timber. The major allocation of timber harvest with support facilities will be the primary impact on the area.

The management alternative selected for the area was the harvesting of commercial timber by clearcutting in areas conflict-free, or resolved of conflict by proposed guidelines, and attractive for high-lead and slackline logging systems. These systems will not be used in areas which would preclude a subsequent entry using more advanced logging systems. The first entry implementation will reflect the guidelines listed in addition to the Multiple Use Coordinating Requirements and present timber harvest and engineering policies.

Specific and General Guidelines

Due to the fragile soils and topographic limitation, this area does not provide a great deal of flexibility for timber harvest and roading. There is an estimated 210 MMBF of commercial timber in the Unit. Of this, 38 MMBF are on fragile soils or slopes greater than 90 percent that are considered impossible to log using present technology. 36 MMBF are on dominantly fragile soils, accessible but thought to be not capable of producing commercial timber in 100 years and where more study is needed to determine if it is ecologically or economically sound to clearcut such areas; 68 MMBF is presently inaccessible. Therefore, this leaves about 68 MMBF of accessible commercial timber available for harvest, not enough for a multiple entry using standard highlead logging equipment. Therefore, we are proposing a single entry to harvest the 68 MMBF of accessible timber with deferral of the 36 MMBF of dominantly fragile accessible soils of questionable productivity and removal of the 38 MMBF of fragile soils on slopes greater than 90 percent from the commercial forest inventory. Reasoning and details for this are listed in the summary consensus and individual reports in the appendix. Listed below is the interdisciplinary team consensus:

1. The south facing slope of the major landform north of Snakey Lake will not be cut during the first entry due to esthetic significance as it relates to the Water Influence zoning of Snakey Lake in the Honker Unit. (See Landscape Management report area "A")

2. The south face of the landform separating the two major forks of North Thorne and its western sideslope is visually related to the Snakey Lakes area. These areas should be given full landscape management considerations of size and distribution using landscape management principles, if adequate size and distribution controls do not develop through leave and deferred areas based on other resource controls. i.e. areas too steep to log, submerchantable timber, critical soils, etc.

3. If the alternate road to the Honker Unit is not constructed, a leave area of timber is required to establish a natural corridor for trail access from the road to the stream and into Snakey Lake.

4. Determine where roading for logging purposes could later become an access route for vehicular or trail use into the high country.

5. Natural openings (i.e. treeless muskeg, grass areas etc.) will be kept free of logging and roading debris.

6. Classify the main haul road as an "A" road and build and maintain to that standard.

7. The alternate road location should be constructed to provide future opportunity for access into Honker Divide.

8. Encourage overall road construction because cuts and fills would largely be in deep slump prone glacial till.

9. The Forest Soil Scientist will locate and approve all rock pits prior to ground disturbance if there is some doubt as to their suitability.

10. All roads will be located away from the toe of mountain as much as possible.

11. All cuts greater than 10 feet should be 1-1/2 to 1, and grass seeded and fertilized.

12. If new landslides occur, they will be planted with alder the first growing season after they occur.

13. Logged over areas of the upper slopes, where reproduction is chloratic and growth is poor, will be fertilized to promote rapid growth

and provide greater soil stability due to anchoring effects of new tree roots.

14. Logical skyline or balloon system settings will be deferred where highlead or slackline systems cannot reach all the commercial timber.

15. Request that all timbered areas on fragile soil and/or 90 percent and greater slopes be removed from commercial forest inventory.

16. Defer from logging two areas (shown on the overlay) where the main stream channels lie at the foot of valley walls of unstable soils.

17. Protect all stream banks and tributaries during logging operations. No logging across any fish streams identified in the report.

18. A study is required to determine the feasibility of blasting some resting pools on the falls of the West Fork to provide easier ascent by fish.

19. Critical soil areas are identified on the map and will not be logged. These are areas that are either highly landslide prone or lack the capability to produce commercial volumes in 100 years or both. Areas deferred from logging solely for landslide reasons were only those that posed a direct threat to fish streams or to planned roads.

20. Plant with spruce wildings the 5 acre flat on the main North Thorne fork where natural regeneration will be a problem after this area is harvested.

21. Establish temperature monitoring stations in the streams just above Snakey Lakes.

22. Protect the esthetics in the falls area by leaving a block of timber around them (see map in the Watershed Protection and Management Report).

23. There will be no logging in or adjacent to high elevation snowslide tracts (map symbol B in Soils Report).

APPENDIX

A. Team Planning Notes on North Thorne

B. Team Individual Reports

1. Wayne Tlusty - Landscape Management Report
2. Charlie Gass - Soils and Wildlife Report
3. Paul Novak - Commercial Fish Report
4. Rick Reed - Sport Fish Report
5. Doug Swanston - Geology Report
6. Dan Bishop - Hydrology Report
7. Dan Swaney and Bob Burke - Timber Report

C. Deflection Lines

D. Map

NORTH THORNE RIVER PROJECT

Planning Meeting Notes

On Friday, July 7, a meeting was held at the planning office to discuss the progress and status of the North Thorne River Planning Unit. In attendance were the four core team members: Gass, Tlusty, Johnson and Swaney. From the Fish & Game, John Palmes, Rick Reed, Bob Wood and Paul Novak; Dan Bishop from the Regional Office and Doug Swanston from the Research Station. Each team member involved in the study presented his work that he had done on the plan and discussed his recommendations with the other team members. Listed below are the pertinent points that were brought out in the meeting:

Wayne Tlusty - Landscape Management

1. Because of the extremely high visual impact on the nose of the ridge between the Honker Divide and North Thorne River Unit, this piece of land will be deferred from clearcut logging.

2. If the alternate road shown on the layout map is not built, provide a leave area at the entrance to where the route takes off to the Snakey Lakes canoe route area.

3. In conjunction with the Recreation and Lands branch, determine alternate alpine access routes into the North Thorne River area. Determine where and if trails should be built, and whether a road should be kept open coming out of the upper reaches of Falls Creek and into the North Thorne River Unit.

Rick Reed - Sports Fish Biologist

Rick Reed commented that his recommendations would be tied to whatever the recommendation of Recreation, Watershed, Soils and Landscape people had to say. He was concerned insofar as soil stability problems on the steep slopes and what the Recreation plans for the area were going to be, etc. He did specifically recommend that we study the possibility of modifying the falls on the west fork to improve the access to spawning fish, and also that we log judiciously along the streams.

Paul Novak - Commercial Fishery Biologist

Like Reed, his recommendations depended upon what the recommendations of the other disciplines were. He was interested primarily in keeping sediment out of the streams, logging carefully along the small tributary streams and protecting the stream from temperature, siltation, etc. He was very critical of the Forest Service and the Pulp Company, as he had observed a small tributary stream in the Unit

b. F2r - these soils are very subject to landslides and are severely damaged when they undergo landsliding.

c. F2, F4, F4r - For same reasons as in (b) above.

d. V - V-notched drains should be considered individually.

e. B - these are snowslide or heavy snow accumulation areas, which have good volume of commerical timber. To log these may well expand conferious sites adjacent to them to persistent brush.

Dan Bishop - Hydrologist

1. The falls on the west fork should be evaluated for possible improvement by blasting pools in it.

2. If high elevation logging is allowed, there should be an effective leave strip between the clearcut and the high elevation snowslide areas.

3. On 30 degree or greater slopes that slope directly to the streams, or there is a strong possibility that the landslide would terminate in the streams, these areas should not be logged.

4. Establish temperature monitoring stations in the streams above Snakey Lakes.

5. There should be a leave block of timber along the falls area on the west fork.

Doug Swanston - Geologist and Landslide Specialist

Swanston had no specific recommendations, but he discussed the North Thorne River area and stated that of all the areas that he has seen on the South Tongass, he feels that this is by far the most unstable. He pointed out the bedrock joint planes were parallel to the slopes, greatly increasing the sliding potential in these upper elevation soils where the vast majority of them trigger. He indicated that clear-cut logging activities in this high elevation zone would in all probability increase the sliding in that area.

The consensus of the group was that further work needed to be done in the North Thorne River area, particularly involving the Soil and Watershed people in establishing clearcut backlines in the Unit. We also need to look at some of the potential borrow sources on these alluvial fans because the bedrock in North Thorne River is very scarce and hard to find. The Soils people need to look at these fans and evaluate the soils for road building material, and with Engineering help determine if this material can be used without harmful watershed impacts.

LANDSCAPE MANAGEMENT RECOMMENDATIONS

North Thorne River Planning Unit

July 6, 1972

South Tongass National Forest

W. Tlusty
Landscape Architect

INTRODUCTION - The following comments and recommendations are based on two days of field observation and subsequent office evaluation. The landscape management objectives established for the area are:

A. Determine the visual consequences, in both the Honker and N. Thorne River Planning Unit, of various management alternatives in the N. Thorne River Unit.

B. Determine the recreation attractiveness of the Snakey Lake area and the opportunities to limit or provide access to the lakes area.

C. Determine the visual impact of cutting on the dominant landform north of Snakey Lakes.

D. Determine the recreation potential in the unit outside the Snakey Lakes Area.

E. Allow to the extent possible, size and distribution concepts to be dictated by leave/deferred strips as determined by soils/watershed and fisheries constraints.

LANDSCAPE MANAGEMENT - Recreation

It is anticipated that the North Thorne Unit will offer the usual good hunting and fishing experiences with a localized attractiveness for other recreation activities. The following comments are directed at opportunities, other than the above recreation activities and areas which are significant enough to require recognition prior to demand, to insure a high quality experience at a later date.

Recommendations

A. Snakey Lakes be given recognition as a unique recreation area and managed accordingly. This area provides a quality canoeing experience which is not provided anywhere else on the South Tongass. The relative ease of moving through the system, which is free of both the fast water and rocky conditions found on both the lower North Thorne and upper Thorne River System, provides the option of returning to the point of origin or continuing down the river to Thorne Bay.

The serpentine character of the system is interspersed with small lakes and ponds. Vegetative types are richly diversified from the grass zones to the back drop areas of spruce hemlock and cedar. The viewing experiences vary from grass flats, to muskeg, to narrow tree-lined banks to open-water areas. The views range from the immediate foreground to framed and filtered views of the landforms associated with the North Thorne River Planning Unit. The sensitivity of the visual impact of these areas differs and should be recognized in planning road and timber harvest areas adjacent the Snakey Lakes area. Access to Snakey Lakes will be off the system road being constructed through the area.

Specific Recommendations

1. The south facing slope of the major landform north of Snakey Lakes should not be cut. (See map - Area A)

2. Areas which offer "filtered views" and upper elevation views (See map - Area B) should be given full landscape management considerations of size and distribution.

3. The area at the base of recommendation No. 1 has an attraction for timber harvest. (see map - Area C) While most of this area is not visible from the water system the area should be senitively planned in a way which will not detract from the experience offered by the lakes area.

4. The lakes area requires a place of "entry". (See map - Area D) This can be accomplished by leaving a small block of timber off the east side of the system road (this would serve as the start of a 600/800 foot portage to canoeing water), rather than force a portage through a cutover area. If the alternate route is developed across the muskeg; direct access from a road to canoeing water will exist. This condition will not require the above leave area.

B. The unit has high country potential which should be defined with conceptual studies to determine areas of entry and exit to the high country system. The unit, which may not be as spectacular as the mainland alpine areas, does offer the option of providing access to the area through existing and proposed logging roads. Presently, there is a logging road between Falls Creek and Lava Creek which is within 1/4-mile of alpine country and the area could be planned to include access points in Ratz Harbor and the Luck Lake area. Once in the alpine area, there are extensive views of Clarence Straits and the mainland mountains, Klawock and Kosciusko Mountains and the Staney and Thorne River drainage. The connections between major landforms dip below the alpine and into timber areas, but they do not perclude traversing the entire system or taking the option of returning to the lower drainages at several points. Opportunities presently exist to study the area and establish guidelines to control development in adjacent areas which would compliment the system, i.e. determine where roading for logging purposes could later become an access route for vehicular or trail use. In many areas, a trail corridor to the alpine and a point of entry are all that is presently required to adequately manage the area for future recreation use.

LANDSCAPE MANAGEMENT - Timber

Most of the planning unit is not as visually sensitive as the areas seen from the primary travel routes.

General Recommendations

A. The use of size and distribution concepts should be based on soils and fisheries recommendations to the extent possible. After the allocation has been made by timber, soils and fisheries the plan should be evaluated for landscape management purposes.

B. There are numerous natural openings and the timber should be felled away from the edge and the areas should be free of logging debris.

Specific Recommendations

Areas which are visually sensitive and relate directly to timber harvest areas are: (see attached map)

1. Area A - should not be logged under present highlead logging methods, as it is the primary visual structing element of the Snakey Lakes area and visual terminus of the Honker Planning Unit.

2. Area B - requires a layout concept which will use distribution and timing concepts to reduce the impact from the water areas.

3. Area C - this area has a high timber value and is primarily sensitive from a locational rather than visually sensistive to the lakes area. Layout should reflect this situation.

4. Area D - If the alternate road is not constructed, this area should be left uncut.

LANDSCAPE MANAGEMENT - Transportation

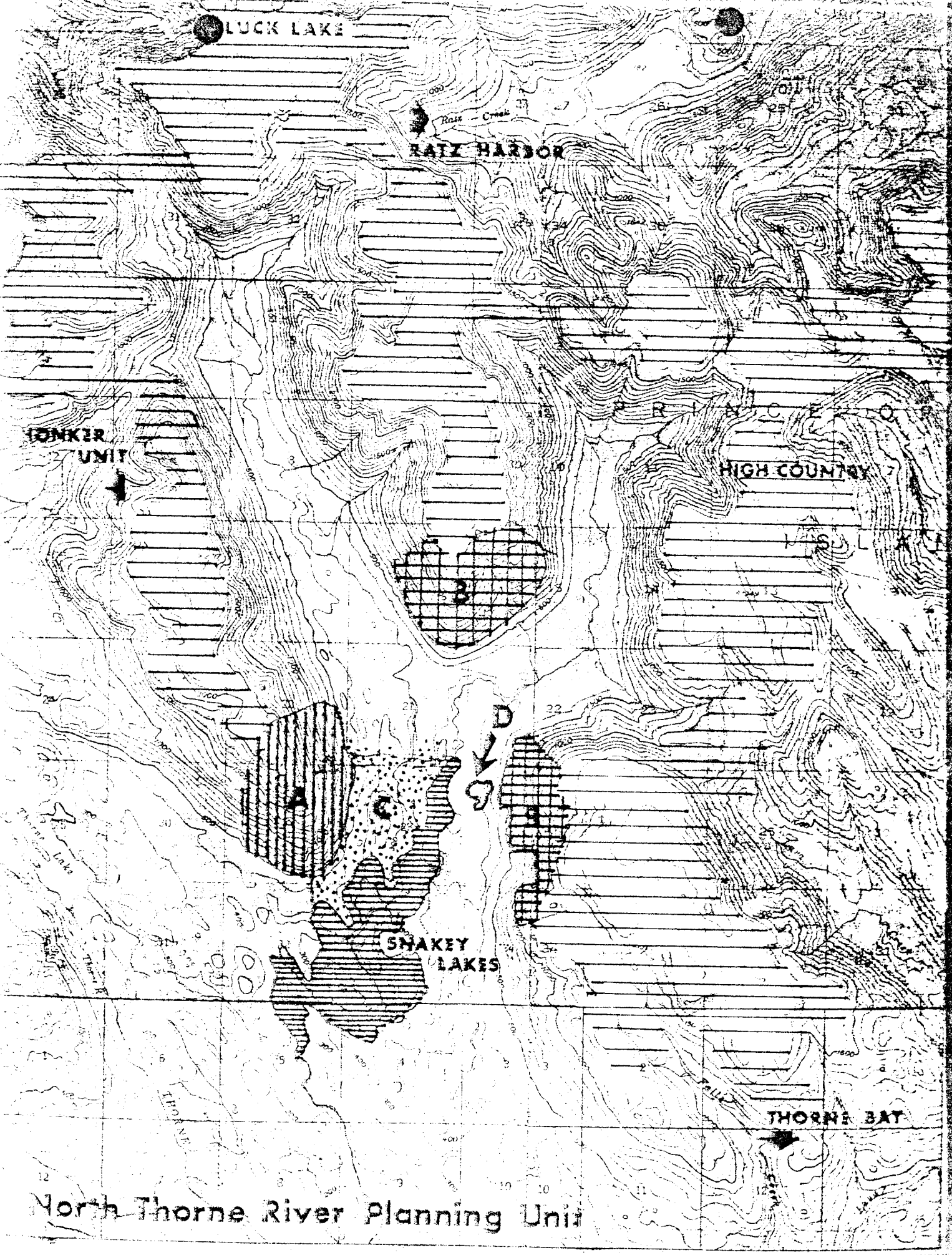
General Recommendations

A. The main haul road into the drainage should be classfied as either "A" or "U" road system. With the potential for recreation in Snakey Lakes, I would recommend an "A" road classification which would be built to the appropriate standards to include; removal of berm and stump material, seeded cut and fill slope and improved horizontal and vertical alignment.

Specific Recommendations

1. If the alternate road location is selected, the area where the road crosses the river should be developed to reflect the recreation potential of the immediate area.

2. If an alternate route is not developed a trail (600/800 feet) should be located from the road to the river (see Area D on the map).



North Thorne River Planning Unit

NORTH THORNE RIVER SOILS REPORT
(interim report to be resubmitted with more detail at a later date)

The North Thorne River planning unit has one soil problem that greatly over-shadows all others. I am referring of course to the soil stability problems on the mountainsides. This report will center on these stability problems and their effect on the resources of the unit.

Before getting into the landslide problem, a few other comments are worth noting. The influence of glaciation is very evident throughout the area. The valley floor is deeply mantled with glacial till and alluvium and most of the lakes and ponds are now filled with deep organic deposits (muskegs). These deep lake filled muskegs are shown on the map with symbols M1 and M3. The M3 muskegs are not only deep, but subject to much flooding. In fact, the water table is at or above the ground surface on these units all year around. The frequency of flooding on the M3 and M1 units, deep organic deposits M1 and M3 units, and general absence of rock in the valley will be a hinderance to road construction across the alternate location shown on the layout map. The absence of rock and threat of landslides pose the greatest problem to conceptual haul roads in the unit.

The North Thorne River area has a history of natural landsliding that exceeds any other known area on the South Tongass insofar as density and frequency of landsliding. In September of 1968, 28 new landslides were discovered in the unit. These slides all occurred apparently on September 9, the day of an unusually heavy rainfall that was preceeded by several days of frequent rain. This incident reportedly muddied the entire drainage from the upper reaches of North Thorne River to saltwater and all of Thorne Bay clear out to Clarence Strait.

Observation of slide prone slopes in the area reveal landslides of various ages, ranging from the most recent ones to those discernable only by detailed on-the-ground examination. These old and new landslides make a perfect study area for evaluating their impact on the other resources.

There is no practical means of preventing landslides, as they are a natural erosion process and a normal part of post glacial adjustment. The problem in managing landslide areas is to avoid accelerating landslides and weighing their impact on various resources and facilities. We must determine if we are willing to risk building roads in their path, how rapidly and effectively can the soil be restored, what the watershed and fishery damage will be, and how long will asethetic recovery take? History tells us that landslides have already put enormous amounts of sediment into North Thorne River. The impact of this on the watershed and fishery resources is not for my discipline to determine. I do feel however, that given the right combination of events,

massive new sliding and sedimentation such as we have never seen could occur if clearcutting was extensively high on the slopes of North Thorne River. It is important to note that most of the slides trigger on the upper half of the slopes in this area, usually on shallow soils in saturation zones. Clearcutting on the slopes below have little influence on triggering of the slides above. However, it should be pointed out that slides are commonly triggered by blowdown in the vicinty of the backline of the clearcut, particularly if it is very high on the slope.

Some observations and measurements I have taken on landslide reforestation are worthy of comment. I spent considerable time in a large slide in the headwaters of the East Fork that has an even-aged stand of conifers about 40 years old. The slide did not go through an alder stage. It is impossible to know the time lag between when the slide occurred and when it vegetated. To digress for a moment, landslides leave three possible catagories of parent material for new soils to form in. These are as follows: Catagory (1) colluvial material at the slide terminus, catagory (2) scoured soil that remains on the slope, and catagory (3) scoured bedrock. Most slides leave a combination of all three of these parent materials; some such as deep till or volcanic ash may expose no bedrock, and some scour the whole tract to bedrock. The slide terminus (cat. 1) is the most easily and rapidly revegetated and is by far the most naturally productive for timber. Quite often as seen, many places in North Thorne River, the terminus actually improves soil productivity for timber when it fans out over muskeg or scrub timbered soils. The slide tracts with soil on them (cat. 2) can be revegetated to commercial timber rapidly provided they go through an alder stage, a necessary process if the soil is to be converted to a timber produc-tivity level. Scoured bedrock (cat. 3) is of course the most difficult to revegetate and it takes centuries for reforestation to commercial volumes to take place. All three catagories of parent material are on the above mentioned slopes. On the terminus (cat. 1) spruce was dominant with heights of 70-80' and DBH's of 8-15 inches. On the catagory 2 soils, spruce was still dominant but there was more hemlock and some cedar. Heights were about 20-30 feet and DBH's commonly 3-6". On catagory 3 soils a moss carpet was present in most places, but there was also considerable bare rock. These soils were well stocked with spruce, hemlock, and cedar, but were only waist high and 1-2 inches in diameter. It is important to remember that these tree were also about 40 years old.

Now the point is this: most of the soils on the upper half of the mountainside are potential or actual catagory 3 soils. There are numerous local areas up there with slopes 40° - 60° (see Swanston's memo). In large measure, these soils owe what stability they have to to anchoring effect of the roots. Should they be clearcut, with their long lag in regeneration and their extremely poor growth, massive landsliding would be quite likely.

Assuming these upper slopes could be clearcut with no soil disturbance and no landslides occurred afterward, what would the productivity of the second growth stand be? To try and answer this question, I spent some time in an extensive burn on Cleveland Peninsula that burned clear to the alpine on soils similar to those in North Thorne River. For all practical purposes, the productivity for timber in a burn is the same as in a clearcut in Southeast Alaska. This burn was perfect for evaluating soil productivity in Southeast. I found that the site index for timber on these high elevation soils ranged from about 30 to 60 compared to 100 to 150 on the usual commercial timber producing soils on which most logging occurs. Obviously, these are not commercial timber producing sites if we are thinking in terms of today's standards.

General Recommendations:

1. Defer logging in areas with the following map symbols: 1/
   a. All F6's as these are not commerical potential.
   b. F6 - not commercial and also highly landslide prone.
   c. FZr - not commerical, highly landslide prone and subject to severe soil damage (catagory 3 soil parent material)
   d. F2 - in the upper zone - highly landslide prone and catagory 3 parent material.
   e. F4 and F4r in upper zone - highly landslide prone and catagory 3 parent material.
   f. V - V-notched drains should be considered individually. Some are too hazardous to log.
   g. B - These are snowslide or heavy snow accumulation areas, some of which have good volumes of commerical timber. To log these may well convert them from conifer sites to persistent brush.

2. If it is determined that permanent road access is to be provided into Honker Divide through North Thorne River, the alternate route shown on the layout map is preferred even though there would be some flooding, drainage, and muskeg problems. In addition to being a straighter, shorter route, this route is not in the path of landslides that might knock it out from time to time.

3. Keep all road as far away from the toe of the mountain as possible to reduce the chance of landslides reaching the road.

4. To the extent practical, encourage overlay construction and discourage cuts and fills.

5. Have rock pits located or checked by a soil scientist in advance of development, if there is any doubt about bedrock being there in sufficient quantity and within reasonable depth from the ground surface.

6. On cuts greater than 10-feet, lay them back to a slope of 1-1/2 = 1, and grass seed and fertilize immediately after construction if done in the spring or early summer or in May or June of the first growing season after construction if done at another time.

7. Plant new landslides with alder the first growing season after they occur.

8. If high elevatiologging is done, fertilize the area to encourage more rapid vegetative recovery and subsequent soil stability.

1/ Soil map is on bulletin board in planning office. Overlays not yet completed.

REPORT on the COMMERCIAL FISH RESOURCES OF NORTH THORNE RIVER SALE UNIT AND RECOMMENDATIONS FOR PROTECTION DURING LOGGING OPERATIONS.

by
Paul Novak
Dennis Blankenbeckler
Gerry Downey

COMMERCIAL FISH DIVISION
ALASKA DEPARTMENT of FISH and GAME
KETCHIKAN
July 3, 1972

This report does not necessarily represent the official position of the department, but is an inventory from which to base recommendations for protection and enchancement of commercial fisheries. This report represents a preliminary position and is subject to change as additional field data are obtained and reviewed by the Alaska Dept. of Fish and Game staff.

INTRODUCTION

The second Interdisciplinary Teamfield trip was held in conjunction with the North Thorne River Sale Unit. This unit is situated northwest of the Thorne Bay Logging Camp. The sale unit is defined in the enclosed map for the east coast of Prince of Wales.

Dennis Blankenbeckler, Gerry Downey, and myself were active team members of the Commercial Fisheries discipline.

All commercial species of salmon except kings are suspected to use this area. Very little historical fisheries data is available for this watershed but escapement records for the Thorne River indicate pink, chum, coho, and red salmon may utilize the North Thorne River for spawning. The North Thorne is an important coho and steelhead rearing area as fry of these species were collected during 1970 and 1971 and this year's I.D.T. field activities. To evaluate the importance of the North Thorne River commercial fisheries, further information should be collected concerning escapement, temperatures and fish distribution above the three existing falls. This information should be collected in the summer and fall of this year. It is evident that this river is a major contributor to the coho stocks of Southeast Alaska.

HISTORICAL DATA

The following data was collected by Commercial Fish, Coho Research, in 1970 and 1971:

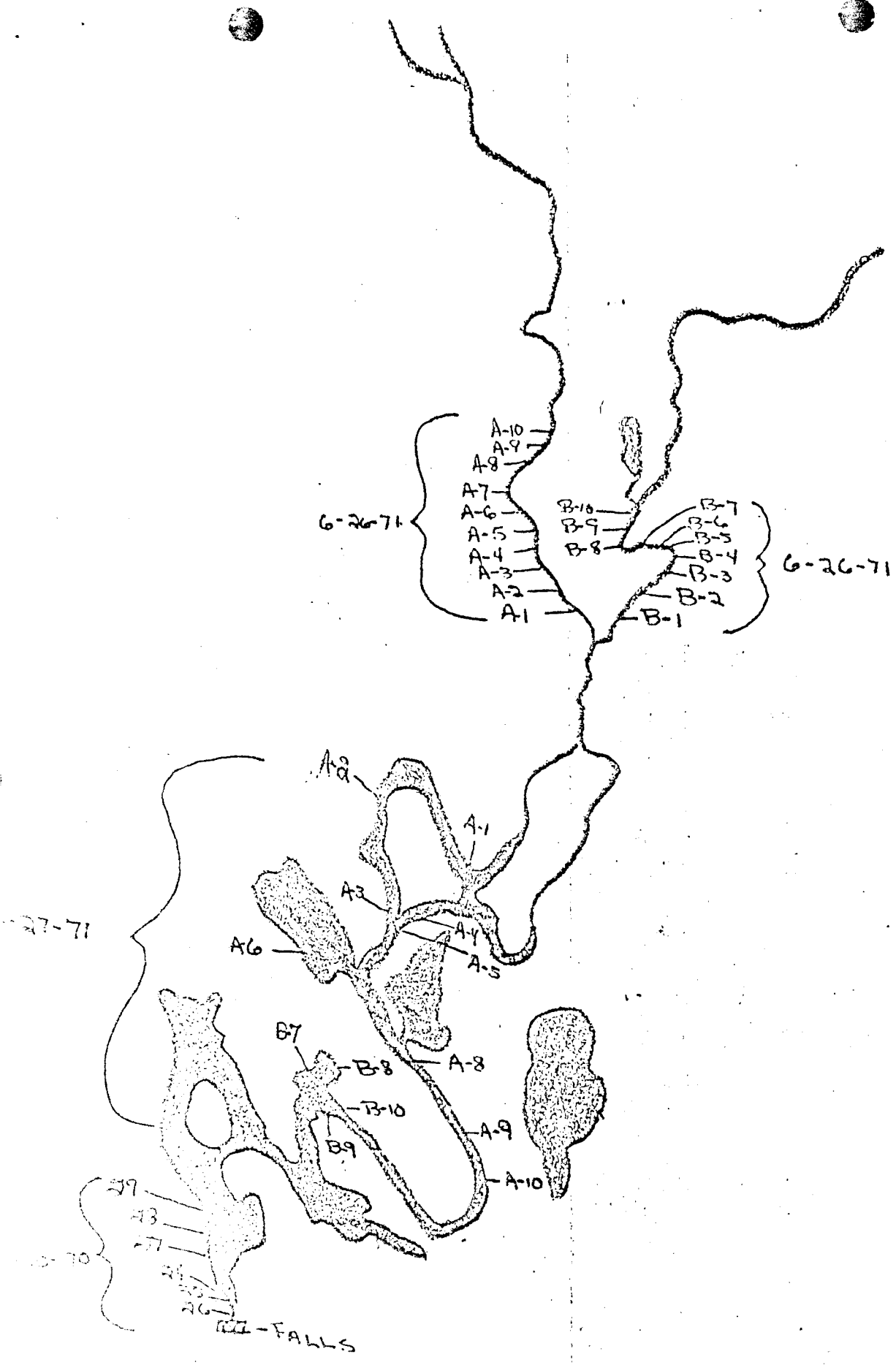
7/20/70	#24	1 hour	25 RT (ct?) 3-8" 3 coho 1- check several coho fry seen.
	#25	1 hour	22 RT (ct?) 3-7" 2 coho 1- check.
	#26	1 hour	15 RT (ct?) 3-8"
	#27	1 hour	1 coho 1- check 3 SB Several coho -1 checks in area.
	#28	1 hour	15 coho 1- check 1 coho 2- check
	#29	1 hour	16 coho 1- check 3 SB
6/26/71	A-1	3 hours	5 RT 51-121 mm 3 DV 83-86 mm
	A-2	3.1 hours	14 coho (12 1-check 60-68 mm: 2 2-check 78-83 mm). 2 RT 56-77 mm 6 DV 71-84 mm
	A-3	3.5 hours	2 coho 1- check 64-68 mm 1 RT 62mm 6 DV 57-89 mm
	A-4	3.5 hours	5 coho 10 check 52-74 mm 4 RT 57-93 mm
	A-5	3.5 hours	no catch
	A-6	3.6 hours	12 coho (11 1-check 59-73 mm: 1 2-check 76 mm). 4 RT 89-145 mm 4 DV 70-80 mm
	A-7	3.8 hours	1 coho (1- check?) 2 RT 80-92 mm 1 DV 64 mm
	A-8	3.9 hours	2 coho 1- check 65-87 mm 4 RT 74-117 mm 2 DV 89-91 mm
	A-9	4.0 hours	5 coho 1- check 65-76 mm 3 RT 99-126 mm 2 DV 75-92 mm
	A-10	4.1 hours	15 coho 1- check 53-74 mm 1 RT 88 mm 1 DV 69 mm

B-1	1.8 hours	8 coho 1- check 65-82 mm 1 RT 107 mm
B-2	1.7 hours	no catch
B-3	1.6 hours	1 coho 1- check 73 mm
B-4	1.5 hours	8 coho 1- check 54-73 mm 1 DV 96mm
B-5	1.5 hours	no catch (poor set)
B-6	1.5 hours	1 DV 94 mm (poor set)
B-7	1.5 hours	1 coho (8 large coho seen)
B-8	1.7 hours	no catch (poor set)
B-9	1.8 hours	no catch
B-10	1.8 hours	no catch

6/27/71

A-1	3.8 hours	5 coho (1 fry 57 mm: 2 1-check 60-66: 2 2-check 71-73 mm)
A-2	3.8 hours	1 DV 116 mm 1 Cottid
A-3	3.5 hours	3 coho (2 1-check 67-78 mm; 1 2-check 70 mm)
A-4	3.6 hours	1 RT 93 mm
A-5	3.1 hours	12 coho 1-check 56-86 mm
A-6	3.6 hours	13 coho (12 1-check 75-99 mm; 1 2-check 93 mm) 2 CT 133-142 mm 1 Cottid
A-7	3.6 hours	no catch
A-8	3.6 hours	no catch
A-9	3.5 hours	1 SB
A-10	3.5 hours	no catch
B-10	2.9 hours	10 coho* 0 1-check 62-102 mm; 1 2-check 93 mm 5 SB * others seen by trap.
B-9	3.3 hours	5 coho 1- check 73-86 mm 11 SB

B-8	3.4 hours	5 coho 1 check 71-92 mm
B-7	3.4 hours	14 coho (13 1-check 67-101 mm; 1 2-check 99 mm) 1 CT 140 mm 1 SB


A-10
A-9
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A-3
A-2
A-1
6-26-71
B-10
B-9
B-8
B-7
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FALLS

DATA GATHERED DURING I.D.T. FIELD TRIP

Lower N. Thorne River to Snakey Lakes.

The area of North Thorne River above its junction with Thorne River is characterized by moderately slow moving water over riffle substrate. Very few pools exist in this portion of the North Thorne River. The substrate is made up entirely of gravel, that is classed as excellent spawning type for pink and chum salmon, with very little silt content. The average depth is estimated at 2.5 feet, with the average width being 50 feet. An estimate of the riffle-pool relationship is 95 and 5 percent respectively.

The upper portion of this defined area has a falls area that evidently is not a problem for fish passage, as coho, steelhead and Dolly Varden were collected above this point. The falls and associated rapids are 50 feet long with the greatest drop being 3 feet.

Several small and two major tributaries enter this lower section of the North Thorne River. All are apparently excellent coho rearing areas. Topography maps show the first major tributary entering from the west but this stream did not have any surface flow at the time surveyed. This mapped tributary has a connected muskeg lake on the upper end with another unconnected lake north of "Tinkerbell Lake". A trap was set in the mouth of this 5-7 acre lake and collected one Dolly Varden in a 2-1/2 hour period.

The other major tributary to North Thorne River enters from the east bank. This stream is approximately two miles long and has a 10-15 acre muskeg lake at the headwaters. A small lake (1-2 acres) drains into this tributary from the north. A trap set on the upper lake collected two cohos. This tributary was walked from the upper lake to the mouth. Many coho fry were observed at this time.

Average width - 15 feet.
Average depth - 8-10 inches.
Riffle composition - 75%.
Pool composition - 25 %.

Thorne Lakes.

This area was surveyed by canoe from above the forks (1/4 mile) to the lower lake of the system. We have separated this area into four stations (refer to map) to allow for its accurate description.

Station #16.

1. We walked approximately 200 yards of this stream.
   Average width - 10 feet.
2. Braided channel with very little spawning potential, good rearing area.
3. Slow moving muskeg.
4. Trapped on coho and sampled one 10-12 inch cutthroat.
5. This stream has no windfall.
6. High water due to heavy run off.

Station #17.

1. Canoed this portion of the east main stream.
   Average width - 30-40 feet.
   Riffle composition - 10%.
2. Good gravel areas but silt evident.
3. Very little rearing or spawning potential.
4. No fish sampled by trapset of 1/2 hours.
5. No windfall.
6. High water due to heavy run off.

Station #18.

This is the junction of the east and west forks of the North Thorne watershed.

East Fork

Average width - 30-40 feet.
Riffle composition - 10%.

West Fork

Average width - 40-50 feet.
Riffle composition - 5-10%.

1. Some gravel, potential spawning area below the forks. Possible steelhead spawning evident.
2. Silt evident.

3. Good water exchange.
4. Trapped one rainbow trout 2-4 inches in length and sampled two adult steelhead below the forks. Both adults were males, 5 lbs. and 10 lbs. respectively.

Station #19.

1. Canoed this lower portion of the Snakey Lakes, characterized by deep slow moving waters.
   Average depth - 2-5 feet.
   Average width - 50-100 feet.
2. Very good rearing area with no spawning riffles.
3. Sampled one cutthroat - 10-12 inches in length.

East Fork North Thorne River.

The entire area above sample station #6 is a very good coho rearing area. The gravel is excellent throughout with very good spawning riffles. Approximately 60% of the area is pool, while 40% is riffle area.

Some windfall is present but aerial survey indicated no fish blockage to the extreme upper limits where the stream cascades off the slope.

Station #6.

We walked downstream from this point to 1/4 mile above station #5.
Average depth - 1-3 feet.
Average width - 35 feet.
Pool composition - 55%.
Riffle composition - 45%.
Three trapsets were made at station #6. The accumulated catch is as follows:
Coho - 11.
Dolly Varden - 55 (4-1/2 hour set).
Coho fry were sighted along the entire length of this walked area. Many small tributaries contribute to the excellent rearing potential. Windfall is present from station #6 to the falls. Very little windfall is present below the falls.

The banks above the falls area well vegetated, but if logged may present a siltation problem. The bank slope in most of this area is severe and could

contribute to this problem. Fortunately, timber values for this area are probably low, therefore, harvesting should be moderate. Timber above station #6 is of commercial grade and restricted logging practices of this area are recommended.

East Falls Area.

The east fork falls has a 3-4 foot drop and is not a fish block as was indicated by the presence of fishes above the area. Totally, the rapids and series of falls cover 1/2 mile. Numerous pools between these rapids probably aid fish spawning migrations. Logging in this falls area should take timber to the banks as windfall may pose a problem.

Below the falls, excellent spawning riffles are present and good gravel with little silt predominate.

West ForkNo. Thorne River.

This fork was walked from station #8 to Station #13. Each station is treated individually in the following report.

Station #8 and #9.

The stream is very unstable in this area, windfall is a problem. Between #8 and #9 there are many beaver dams which have had a braiding effect on the stream. No fish blocks were present from these dams. A beaver dam above station #9 causes the stream to be braided for a distance of 1/4 mile downstream.

Average width - 35-40 feet.
Pool composition - 40%.
Riffle composition - 60%.

Good spawning gravel with little silt content characterizes the riffles.
No fish were observed.

Station #11 - Tributary.

We walked a short distance up this tributary which is insignificant as a rearing area.

Average width - 5 feet.
Average depth - 3-4 inches.

No fish were observed.

Station #12 - Tributary.

Slight, if any, rearing potential.

Average width - 6 feet.

Average depth - 6 inches.

No fish observed.

The proposed road crossing between stations #11 and #12 was surveyed and no adverse effects were seen. The stream at this point is stable with a good gravel (2" diameter) substrate. Commercial timber grows to the edge of the stream.

Station #13.

Terminus area of the west fork area was walked. Good timber grows to the edged of the stream, very few windthrows in the stream were found in this area. A gentle slope from the stream to the hillside is present and is ideal for the placement of a roadbed.

West Falls Area #4.

First observations indicated that this falls area served as a complete fish block. Two traps were set immediately above the area. In a 45 minute period 1 coho fry was collected. The falls are approximately 12 feet in height and 30 yards in length, the water cascades down a series of three tiers. Very few still area (pockets) exist in the falls for accomodating fish migrations. The falls area may not serve as a complete barrier but may possibly hamper movement above the falls.

Below the falls excellent spawning riffles and pools with good gravel exist. The stream is 45 feet in width and averages 2 feet in depth, approximately 50% of the stream is riffle area. Very little windfall is present in the stream with stabilized banks and moderate gradient slopes away from the stream. Commercial timber is also present along this lower area of the east fork.

If logging takes place in this portion of the stream, it should be complete to the stream banks.

RECOMMENDATIONS

1. West Fork:

   A. The primary recommendation for this portion of the system is to not log north of the tributary located at station #11. The physical characteristics of the land adjacent to the stream tend to support this suggestion as the area is comprised of muskeg type features. The stream is unstable due to muskeg conditions and any disturbance of the area above could magnify the situation. The steep hillsides surrounding this upper portion should be protected from complete logging as past history dictates these as being slide-prone areas. The timber on these upper hillsides is probably inaccessible to practical logging techniques, therfore, a workable agreement should be easily found for the finalized plan. If this recommendation is acceptable, it would not be necessary to construct the logging road beyond station #11 on the east side of the watershed.

   B. Logging below station #11 will not effect the stream if care is taken to not log too high on the hillsides. We recommend an approximate 1000 foot elevation. These hillsides remain relatively steep with slide potential. Recommendations should correspond with the soils and landslide disciplines.

   C. No leave strips are recommended in the area below station #11, which should be cut to the bank of the stream. Care should be exercised in yarding away from the stream and keeping debris out of the West fork of the watershed.

   D. Further studies will be conducted to determine if the falls are serving as a barrier to most migrating species. Should a barrier be found, work may be necessary to enhance this migration by possible blasting in the falls area.

2. East Forks:

   A. The proposed leave area on this fork is much the same as on the west fork. Approximately 1/4 mile above station #6, the stream is very unstable. Many beaver dams exist in this muskeg terrain and as a result the channel is braided with slow moving waters creating excellent coho rearing areas. Siltation would surely be a problem if

logging occurred in this area, but timber values are judged as being low so acceptance to leave this area is evident. Above this muskeg area, the upper-most area of the watershed has commercial grade timber. Harvesting in this area would have limited effect on commercial fisheries as the terrain is rolling with well established streambeds, low silt influence. Logging could occur approximately 1/3 up the slope of the hillside (1,000 foot elevation) in the four headwater tributaries.

The leave area should continue downstream from station #6 including all the muskeg terrain to the confluence of the tributary, station #16, and the North Thorne River, (refer to map). The entire area has scrub timber and is associated with muskeg terrain. Many muskeg tributaries in this area are excellent coho rearing areas.

B. Road locations in the east fork do not appear to dictate any adverse effects on the commercial fishery resource. One alternate spur on the west side of this fork should end near the tributary influence below station #6. This would mean that an extension of the east road should cross the stream in the headwaters to feasibly harvest this timber.

The "I" road crossing in this fork is in a good location, no problems are foreseen.

3. Snakey Lakes.

Recommendations for leave strips in the upper reaches of both forks have been made to protect this excellent rearing area. It is felt that any silt load from the upper areas will eventually settle in these lakes. Because these lakes are included in the Honker Divide planning, I feel that the esthetic values of this area should be protected from logging. East of the Snakey Lakes, logging should not occur below the 300 foot elevation line.

A. Water temperatures may influence the rearing potential of these lakes. By adhering to the 300 foot elevation, most short feeder tributaries would be protected which should help maintain temperatueres.

B. The tributary that enters from the east just above Snakey Lakes is

presently being logged at its headwaters. If this is an example of proper logging techniques in relationship to maintaining the fishing resources, then the fisheries will definitely suffer. Trees have been felled in and across the creek, debris from this logging activity chokes the creek and related silt problems are evident. The present road location stops short of the creek, therefore, yarding will have to take place across the stream. This will be another violation of logging practices as determined by the Forest Service and other agencies. Immediate action should be taken to re-establish and restore this stream to a productive system.

More surveilance and enforcement of these type of violations must occur in the future if the planning efforts of these teams are to have meaning.

We recommend a leave area from the entrance to the lagoon to the mouth of this stream. Excellent coho rearing persists in this area and should be protected. Water temperatures could also be a limiting factor if the area were to be logged. The only commercial timber on this tributary is located near the mouth and could be harvested in this area.

4. Lower North Thorne River:

This system is designated to be included in the Honker Divide Wilderness Study, so recommendations will be made to this effect.

A. Leave area, (refer to map) on the lower reaches of this river should be considered to preserve the esthetic values of the proposed Wilderness area.

B. The Lake creek tributary that enters from the east (station #2 and #14) appears to be an excellent salmon spawning stream. By logging along the 300 foot elevation, the lake and tributary would be protected. By logging to the creek, we feel sure that temperature and siltation will limit fish production in this area. Excellent gravel riffles exist the entire length of the stream and are probable high useage areas for coho, pink, chum, and sockeye salmon. Further fisheries study will be of benefit to determine type and magnitude of runs.

General Watershed Recommendations.

A. Siltation can be the major limiting factor to commercial fisheries production. Landslides that have occurred in the upper forks of the watershed may be the prime contributor to past siltation problems. Any logging activities on these high gradient hillsides should be closely managed to discourage further slides. As a generalized recommendation for logging these hillsides on the upper forks, I recommend logging no higher than the 1,000 foot elevation.

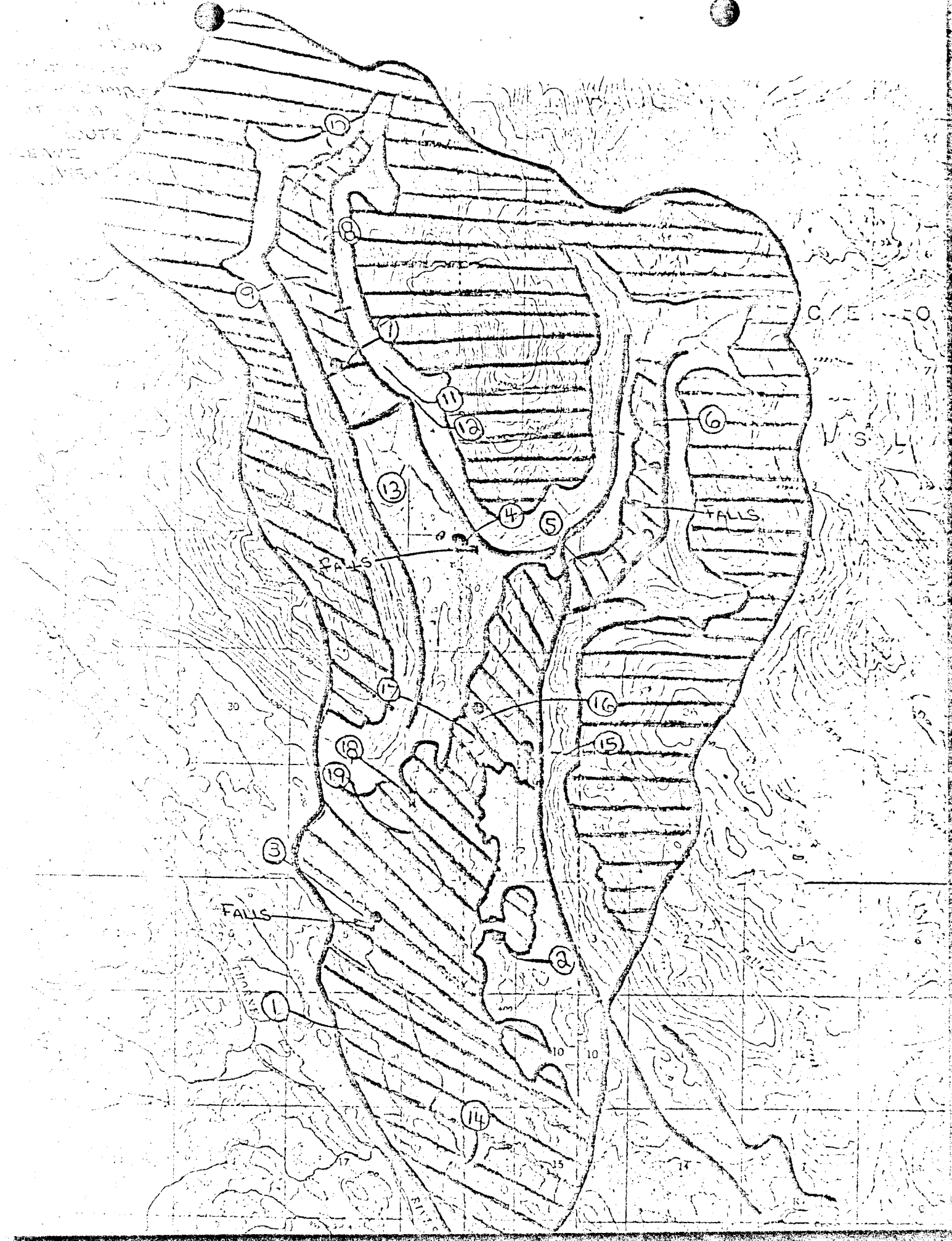
B. Existing slide areas should be fertilized and grassed or alder seeded to hold siltation problems to a minimum. Logged hillsides should be grassed where the soils are unstable and prone to erosion.

C. Roads should be constructed so as not to destroy or physically change the stream. The stream crossings should be constructed when no spawning salmon or incubating eggs or alevins are in the stream, preferably June through August.

D. Yard timber away, keep debris out of the stream.

E. Observe fish movements to and above fall areas to evaluate whether alteration of these three areas is necessary to enchance production of commercial species.

F. Logging in the Snakey Lakes area should be deferred until the Horder Divide Wildersness Study is finalized.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